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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/682,536	10/10/2003	Scott A. Cummings	1875.4850000	9722
26111	7590	07/18/2008	EXAMINER	
STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.			C'HAN, SAI MING	
1100 NEW YORK AVENUE, N.W.			ART UNIT	PAPER NUMBER
WASHINGTON, DC 20005			2616	
MAIL DATE		DELIVERY MODE		
07/18/2008		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/682,536	<b>Applicant(s)</b> CUMMINGS, SCOTT A.
	<b>Examiner</b> Sai-Ming Chan	<b>Art Unit</b> 2616

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If no period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 5/16/2008.

2a) This action is FINAL.      2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-36 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 1-36 is/are rejected.

7) Claim(s) \_\_\_\_\_ is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All    b) Some \* c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) Notice of References Cited (PTO-892)  
2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_

4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_

5) Notice of Informal Patent Application  
6) Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

**Claims 1-2 and 25-26** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Bunn et al. (U.S. Patent Publication # 20070058640)**, in view of **Chapman (U.S. Patent # 7085287)**.

Consider **claim 1**, Bunn et al. clearly disclose and show a method for improving channel efficiency in a broadband communication system that complies with a Data Over Cable Service Interface Specification (DOCSIS) standard, comprising:

establishing one or more proprietary logical channels (fig. 4 (408), paragraph 0094 (transmit data with extended protocol)) for communication between a first device (fig. 1 (104 (cmts)); paragraph 65) that supports at least one proprietary communication parameter (paragraph 71) associated with bandwidth utilization (paragraph 22, lines 11-17) and other devices (fig. 1 (108 (cm)); paragraph 70) that support said at least one proprietary communication parameter (paragraph 99 (presence of extended protocol descriptor));

receiving registration information (fig. 4 (402); paragraph 90) from a second device, wherein said registration information (paragraph 92) indicates that said second device supports said at least one proprietary communication parameter (fig. 4 (402( extended protocol)); paragraph 92); and

determining if said second device may be assigned to one of said one or more proprietary logical channels based on said registration information (fig. 4 (406), paragraph 0094 (transmit data with extended protocol)),

if said second device may be assigned to said one of said one or more proprietary logical channels, assigning said second device to said one of said one or more proprietary logical channels (fig. 4 (408), paragraph 0094 (transmit data with extended protocol)),

However, Bunn et al. do not specially disclose creating a new proprietary logical channel.

In the same field of endeavor, Chapman clearly shows creating a new proprietary (col. 11, lines 30-32 (non-conventional) logical channel and assigning said second device to said new proprietary logical channel when said second device cannot be assigned to said one of said one or more proprietary logical channels (col. 11, lines 30-35 (any combination across lines cards can be created).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to demonstrate a channel efficiency method, as taught by Bunn et al., and create logical channels, as taught by Chapman, so that communication can be conducted efficiently.

Consider **claim 25**, Bunn et al. clearly disclose and show a computer program product (fig. 23; paragraph 290) comprising a computer useable medium having computer program logic (paragraph 294) recorded thereon for enabling a processor (fig. 23 (2303)) to facilitate communication (fig. 23 (2302)) between devices in a broadband communication system () that complies with a Data Over Cable Service Interface Specification (DOCSIS) standard (paragraph 70), said computer program logic comprising:

means for enabling the processor to establish a channel for communication between a first device (fig. 1 (104 (cmts)); paragraph 65) that implements at least one

proprietary communication parameter (paragraph 71 (using proprietary protocols)) associated with bandwidth utilization (paragraph 22, lines 11-17) and other devices (fig. 1 (108 (cm)); paragraph 70) that support said at least one proprietary communication parameter (paragraph 99 (presence of extended protocol descriptor));

means for enabling the processor to receive registration information (fig. 4 (402); paragraph 90) from a second device, wherein said registration information indicates that said second device supports said at least one proprietary communication parameter (fig. 4 (402( extended protocol)); paragraph 92); and

means for enabling the processor to determine if said second device may be assigned to one of said one or more proprietary logical channels based on said registration information (fig. 4 (406), paragraph 0094 (transmit data with extended protocol)),

means for enabling the processor to assign said second device to said one of said one or more proprietary logical channels, assigning said second device to said one of said one or more proprietary logical channels (fig. 4 (408), paragraph 0094 (transmit data with extended protocol)),

However, Bunn et al. do not specially disclose creating a new proprietary logical channel.

In the same field of endeavor, Cloonan et al. clearly show creating a new proprietary logical channel and assigning said second device to said new proprietary logical channel when said second device cannot be assigned to said one of said one or

more proprietary logical channels (fig. 2 (10 (L.C. A1 & A2)); paragraph 26) for the CM to transmit data to CMTS.

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to demonstrate a channel efficiency method, as taught by Bunn et al., and deploy the logical channels, as taught by Cloonan et al., so that communication can be conducted efficiently.

Consider **claim 2**, and **as applied to claim 1 above**,

**claim 26**, and **as applied to claim 25 above**,

Bunn et al., as modified by Chapman, clearly disclose and show a method, wherein said first device comprises a cable modem termination system (fig. 1 (104 (cmts)); paragraph 65) and said second device comprises a cable modem (fig. 1 (108 (cm)); paragraph 70).

**Claims 4 and 28** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Bunn et al. (U.S. Patent Publication # 20070058640)** in view of **Chapman (U.S. Patent # 7085287)**, and in view of **Vogel et al. (U.S. Patent # 7089580)**.

Consider **claim 4**, and **as applied to claim 1 above**,

**claim 28**, and **as applied to claim 25 above**,

Bunn et al., as modified by Cloonan et al., clearly disclose and show the method as described.

However, Bunn et al., as modified by Cloonan et al., do not specially disclose the base rate.

In the same field of endeavor, Vogel et al. clearly show a base rate (column 9, lines 34 (base rate is 160000 per sec)) for data transmission.

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate a channel efficiency method, as taught by Bunn et al., as modified by Cloonan et al., and identify the base rate, as taught by Vogel et al., in order to show that the bandwidth efficiency is optimized.

**Claims 5 and 29** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Bunn et al. (U.S. Patent Publication # 20070058640)** in view of **Chapman (U.S. Patent # 7085287)**, and in view of **Graham Mobley et al. (U.S. Patent Publication # 20030053493)**.

Consider **claim 5**, and **as applied to claim 1 above**,

**claim 29**, and **as applied to claim 25 above**,

Bunn et al., as modified by Cloonan et al., clearly disclose and show the method as described.

However, Bunn et al., as modified by Cloonan et al., do not specially disclose the alpha value.

In the same field of endeavor, Graham Mobley et al. clearly show an alpha value (paragraph 319, lines 12-13) for data transmission.

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate a channel efficiency method, as taught by Bunn et al., and identify the base rate, as taught by Graham Mobley, in order to show that the bandwidth efficiency is optimized.

**Claims 6-8 and 30-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bunn et al. (U.S. Patent Publication # 20070058640), in view of Chapman (U.S. Patent # 7085287), and in view of Rakib et al. (U.S. Patent Publication # 20050025145).**

Consider **claim 6**, and as applied to **claim 1 above**,

**claim 30**, and as applied to **claim 25 above**,

Bunn et al., as modified by Chapman, clearly disclose and show the method as described.

However, Bunn et al., as modified by Chapman, do not specially disclose the UCD messages.

In the same field of endeavor, Rakib et al. clearly show sending the Upstream Channel Descriptor (UCD) message (paragraph 63).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate a channel efficiency method, as taught by Bunn et al., and to send a UCD message, as taught by Rakib, in order to show that the bandwidth efficiency is optimized.

Consider **claim 7**, and **as applied to claim 6 above**,

**claim 31**, and **as applied to claim 30 above**,

Bunn et al., as modified by Chapman, clearly disclose and show a method, wherein said generating a message having a version field (fig. 9b (918); paragraph 133) or a type field (fig. 9b (922); paragraph 133) that comprises a value not provided for by the DOCSIS standard.

However, Bunn et al., as modified by Chapman, do not specially disclose the generating of a Upstream Channel Descriptor (UCD) message.

In the same field of endeavor, Rakib et al. clearly show the Upstream Channel Descriptor (UCD) message (paragraph 63).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate a channel efficiency method, as taught by Bunn et al., and generate UCD messages, as taught by Rakib, in order to guarantee smooth data transmission.

**Consider claim 8, and as applied to claim 1 above,**

**claim 32, and as applied to claim 30 above,**

Bunn et al., as modified by Cloonan et al., clearly disclose and show the method as described.

However, Bunn et al., as modified by Chapman, do not specially disclose sending the UCD messages to the intended devices.

In the same field of endeavor, Rakib et al. clearly show sending the Upstream Channel Descriptor (UCD) message (paragraph 63) only to intended devices (figs. 9a,b &c; paragraph 36).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate a channel efficiency method, as taught by Bunn et al., as modified by Cloonan et al., and to send a UCD message to intended devices, as taught by Rakibet, in order to show that the bandwidth efficiency is optimized.

**Claims 9-10 and 33-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bunn et al. (U.S. Patent Publication # 20070058640), in view of Chapman (U.S. Patent # 7085287), and in view of Rakib et al. (U.S. Patent Publication # 20050025145), and further in view of Limb et al. (U.S. Patent Publication # 20070076717.**

Consider **claim 9**, and **as applied to claim 8 above**,

**claim 33**, and **as applied to claim 32 above**,

Bunn et al., as modified by Cloonan et al., clearly disclose and show a method, wherein said sending said message only to devices that support said at least one proprietary communication parameter comprises:

accessing a database of identifiers (fig.5 (502-514( cmts uses cm id to access protocol indicator; paragraph 98)) of devices that support said at least one proprietary communication parameter; and

However, Bunn et al. as modified by Cloonan et al., do not specially disclose the sending of a unicast message.

In the same field of endeavor, Limb et al. clearly show the generating a unicast message (paragraph 45).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate a channel efficiency method, as taught by Bunn et al., and to send a unicast message, as taught by Limb et al., in order to ensure bandwidth efficiency.

However, Bunn et al., as modified by Cloonan et al., and further modified by Limb et al., do not specially disclose sending the UCD messages to the intended devices.

In the same field of endeavor, Rakib et al. clearly show sending the Upstream Channel Descriptor (UCD) message (paragraph 63) only to intended devices (figs. 9a, b & c; paragraph 36).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate a channel efficiency method, as taught by Bunn et al., and to send a unicast message, as taught by Limb et al., and to send a UCD message, as taught by Rakib et al., in order to ensure smooth data transmission.

Consider **claim 10**, and **as applied to claim 8 above**,

**claim 34**, and **as applied to claim 32 above**,

Bunn et al., as modified by Cloonan et al., clearly disclose and show a method, wherein said sending said message only to devices that support said at least one proprietary communication parameter comprises:

accessing an identifier (fig.5 (502-514( cmts uses cm id to access protocol indicator;paragraph 98)).

However, Bunn et al. as modified by Cloonan et al., do not specially disclose the sending of a multicast message.

In the same field of endeavor, Limb et al. clearly show the generating a multicast message (paragraph 51).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate a channel efficiency method, as taught by

Bunn et al., and to send a multicast message, as taught by Limb et al., in order to ensure bandwidth efficiency.

However, Bunn et al., as modified by Cloonan et al., and further modified by Limb et al., do not specially disclose sending the UCD message.

In the same field of endeavor, Rakib et al. clearly show sending the Upstream Channel Descriptor (UCD) message (paragraph 63) a plurality of devices (figs. 9a,b &c; paragraph 36).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate a channel efficiency method, as taught by Bunn et al., and to send multicast message, as taught by Limb et al., and to send a UCD message, as taught by Rakib et al., in order to show that the bandwidth efficiency is optimized.

**Claims 11-12 and 35-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bunn et al. (U.S. Patent Publication # 20070058640), in view of Chapman (U.S. Patent # 7085287), and in view of Limb et al. (U.S. Patent Publication # 20070076717).**

Consider **claim 11**, and **as applied to claim 1 above**,  
**claim 35**, and **as applied to claim 25 above**,  
Bunn et al., as modified by Chapman, clearly disclose and show a method, wherein said receiving said registration information from a second device comprises:

sending a first message (fig. 4 (402); paragraph 298; cmts sends message to cm for proprietary features capability) to said second device to determine if said second device implements any proprietary features;

receiving a message (fig. 4 (402); paragraph 90) from said second device, wherein said message indicates support by said second device for said at least one proprietary communication parameter; and

sending a second message (fig. 4 (404); paragraph 93) to said second device, wherein said second message indicates support by said first device for said at least one proprietary communication parameter.

However, Bunn et al. as modified by Chapman, do not specially disclose the sending of a unicast message.

In the same field of endeavor, Limb et al. clearly show the generating a unicast message (paragraph 45).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate a channel efficiency method, as taught by Bunn et al., and to send a multicast message, as taught by Limb et al., in order to ensure bandwidth efficiency.

Consider **claim 12**, and as applied to claim 1 above,

**claim 36**, and as applied to claim 25 above,

Bunn et al., as modified by Chapman, clearly disclose and show a method as described.

However, Bunn et al. as modified by Chapman, do not specially disclose the sending of a unicast message.

In the same field of endeavor, Limb et al. clearly show the generating a unicast message (paragraph 45).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate a channel efficiency method, as taught by Bunn et al., and to send a multicast message, as taught by Limb et al., in order to ensure bandwidth efficiency.

**Claims 3, 13 and 27** are rejected under 35 U.S.C. 103(a) as being unpatentable over Bunn et al. (U.S. Patent Publication # 20070058640), in view of Chapman (U.S. Patent # 7085287), and in view of Cloonan et al. (U.S. Patent Publication # 2004000863).

Consider **claim 3**, and as applied to **claim 1 above**,  
**claim 27**, and as applied to **claim 25 above**,  
Bunn et al., as modified by Chapman, clearly disclose and show the method as described.

However, Bunn, as modified by Chapman, do not show the modulation rate.

In the same field of endeavor, Cloonan et al. clearly show the modulation rate (paragraph 26, lines 10-16).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate a channel efficiency method, as taught by Bunn et al., and deploy the logical channels, as taught by Cloonan et al., in order to ensure that the bandwidth efficiency is optimized.

Consider **claim 13**, Bunn et al. clearly disclose and show a cable modem termination system (CMTS) (fig. 5; paragraph 38) for improving channel efficiency in a cable modem system that complies with a Data Over Cable Service Interface Specification (DOCSIS) standard (paragraph 70), comprising:

to establish one or more proprietary logical channels (fig. 4 (408), paragraph 0094 (transmit data with extended protocol)) for communication between a first device (fig. 1 (104 (cmts)); paragraph 65) that supports at least one proprietary communication parameter (paragraph 71) associated with bandwidth utilization (paragraph 22, lines 11-17); and

a registration module (paragraph 99) adapted to receive registration information from a cable modem, wherein said registration information indicates that said cable modem supports said at least one proprietary communication parameter (paragraph 99 (presence of extended protocol descriptor in the message)).

to determine if said second device may be assigned to one of said one or more proprietary logical channels based on said registration information (fig. 4 (406), paragraph 0094 (transmit data with extended protocol)),

if said second device may be assigned to said one of said one or more proprietary logical channels, assigning said second device to said one of said one or more proprietary logical channels (fig. 4 (408), paragraph 0094 (transmit data with extended protocol)),

However, Bunn et al. do not specially disclose the upstream channel manager

In the same field of endeavor, Cloonan et al. clearly show an upstream channel manager (abstract (high level MAP scheduler); fig. 5 (16 (high level MAP scheduler)) paragraph 26, (PHY, for physical channel, can be connected to several logical channels. The low level MAP Scheduler (8) keeps track of which logical channels are tied to which physical channel. The high level MAP scheduler controls the low level MAP scheduler).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to demonstrate a channel efficiency method, as taught by Bunn et al., and create logical channels, as taught by Chapman, so that the system is managed properly.

However, Bunn et al. do not specially disclose creating a new proprietary logical channel.

In the same field of endeavor, Chapman clearly shows creating a new proprietary (col. 11, lines 30-32 (non-conventional) logical channel and assigning said second

device to said new proprietary logical channel when said second device cannot be assigned to said one of said one or more proprietary logical channels (col. 11, lines 30-35 (any combination across lines cards can be created).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to demonstrate a channel efficiency method, as taught by Bunn et al., and create logical channels, as taught by Chapman, so that communication can be conducted efficiently.

Consider **claim 14**, it is being rejected for the same reason as set forth in **claim 3**.

Consider **claim 15**, it is being rejected for the same reason as set forth in **claim 4**.

Consider **claim 16**, it is being rejected for the same reason as set forth in **claim 5**.

Consider **claim 17**, it is being rejected for the same reason as set forth in **claim 1**.

Consider **claim 18**, it is being rejected for the same reason as set forth in **claim 6**.

Consider **claim 19**, it is being rejected for the same reason as set forth in **claim 7**.

Consider **claim 20**, it is being rejected for the same reason as set forth in **claim 8**.

Consider **claim 21**, it is being rejected for the same reason as set forth in **claim 9**.

Consider **claim 22**, it is being rejected for the same reason as set forth in **claim 10**.

Consider **claim 23**, it is being rejected for the same reason as set forth in **claim 1**.

Consider **claim 24**, it is being rejected for the same reason as set forth in **claim 9**.

***Response to Amendment***

Applicant's arguments filed on 4/8/2008, with respect to claims 1, 13 and 25, on pages 13-20 of the remarks, have been carefully considered.

In the present application, Applicants basically argue, that Bunn do not teach or suggest "proprietary channels", "determine if a device can be assigned to one of the proprietary channel" and "creating a new proprietary channel if a device cannot be assigned to one of the said proprietary channel". The Examiner has modified the response with a new reference which combines with Bunn to provide "proprietary channels", "determine if a device can be assigned to one of the proprietary channel" and "creating a new proprietary channel if a device cannot be assigned to one of the said proprietary channel". See the above rejections of claims 1, 13 and 25, for the relevant interpretation and citations found in Chapman, disclosing the limitations.

***Conclusion***

Any response to this Office Action should be **faxed to (571) 273-8300 or mailed to:**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**Hand-delivered responses** should be brought to

Customer Service Window  
Randolph Building  
401 Dulany Street  
Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Sai-Ming Chan whose telephone number is (571) 270-1769. The Examiner can normally be reached on Monday-Thursday from 6:30am to 5:00pm.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Seema Rao can be reached on (571) 272-3174. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free) or 571-272-4100.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist/customer service whose telephone number is (571) 272-2600.

/Kevin C. Harper/

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Art Unit: 2616

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Primary Examiner, Art Unit 2616

/Sai-Ming Chan/

Examiner, Art Unit 2616

July 12, 2008.